

REMARKS

The Examiner is thanked for the careful examination of the application. However, in view of the foregoing amendments and the remarks that follow, the Examiner is respectfully requested to reconsider and withdraw the outstanding rejections.

By the foregoing amendments, independent claim 1 has been amended. Accordingly, claims 1-5 and 7-11 are currently pending. Claim 1 is the only independent claim in the application.

Claims 1-5 and 7-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over JP11-014656, hereinafter *Horiuchi* in view of U.S. Patent No. 6,258,007, hereinafter *Kristjansson*, and U.S. Patent No. 4,491,033, hereinafter *Carlson et al.*

In order to expedite prosecution of the application, claim 1 has been amended to more clearly distinguish the present invention over the cited prior art. Nevertheless, Applicants question whether the Examiner's alleged motivation for combining the technology of the cited references is sufficient to comply with 35 U.S.C. §103(a). To the extent not elaborated herein, Applicants reserve the right to provide further arguments challenging the Examiner's motivation to combine the references and/or the Examiner's analysis of the individual references.

By foregoing amendment, claim 1 has been amended to clearly indicate that the cross roller bearing is located in axial alignment with the diaphragm and the flexible external gear boss. For purposes of explanation, and not limitation, the Examiner's attention is directed to the fact that in the preferred embodiment, the cross roller bearing 15 is located in axial alignment and externally about the

diaphragm 22 and the flexible external gear boss 23. This feature can be easily seen in Figure 1, which illustrates the preferred embodiment of the present invention.

As previously stated in claim 1, the cross roller bearing, the second bearing, the wave bearing, and the first bearing are located in that order from the side of the wave gear reduction drive along the center axis of the housing.

The Examiner has added *Carlson et al.* to the rejection for the purposes of teaching that a bearing 22, which allegedly corresponds to the cross roller bearing of the present invention, is located to the left side of a bearing 26, which the Examiner alleges corresponds to the claimed second bearing.

However, the combination of prior art applied by the Examiner is not appropriate. Specifically, claim 1 relates to an actuator that includes a housing and a motor and a wave gear reduction drive. In contrast to the present invention, the wave gear generator arrangement of *Carlson et al.* does not include an assembly having a motor portion. If a motor is connected to the *Carlson et al.* assembly, it must be connected at the right end of the shaft 18, as illustrated in Figure 1. Such an arrangement would increase the length of the assembly and cannot achieve the main purpose of the present invention, that is to realize the compact and flat structure of an actuator having a wave gear reduction drive and a motor.

Furthermore, as shown in Sketch A on the attached sheet, the inner diameter of the output bearing 22 is smaller than the outer diameter of the flexspline 30 in the *Carlson et al.* assembly. Thus, the output bearing 22 and the flexspline must be arranged axially with respect to each other. This feature also increases the length of the *Carlson et al.* device.

In contrast to *Carlson et al.*, according to an embodiment of the present invention, as illustrated in Sketch B, the cross roller bearing 15 is located in axial alignment with the diaphragm and the flexible external gear boss such that the cross roller bearing is located externally of the diaphragm and the flexible external gear boss. This arrangement provides for a reduced length in the actuator.

The Examiner alleges that the change of the axial positions of the bearings 15 and 55 of the preferred embodiment of the present invention is simply a matter of choice. However, the relative axial positions of the bearings of the present invention has certain advantages over the prior art.

As illustrated in Sketch C, according to an embodiment of the present invention, the cross roller bearing 15 is located in axial alignment with the diaphragm and the flexible external gear boss such that the cross roller bearing is located externally over the diaphragm and the flexible external gear boss. In the *Horiuchi* prior art, the cross roller bearing is located around the circular body portion of the flexible external gear as illustrated in Sketch D. Thus, the length L, i.e., the distance between the supporting point of the cross roller bearing and the end of the output shaft, is able to be made shorter in the present invention than in the prior art. As result, the bearing is capable of supporting a larger radial load compared to the prior art. And, the inner race of the bearing can easily be connected to the boss portion.

Accordingly, Applicants submit that the three references cited by the Examiner do not teach claim 1, as now amended.

In the event that there are any questions concerning this response, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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Date: June 15, 2004

By: 

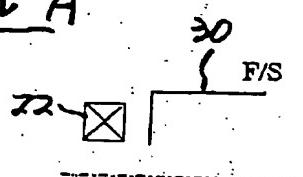
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EXHIBIT A

Sketch A



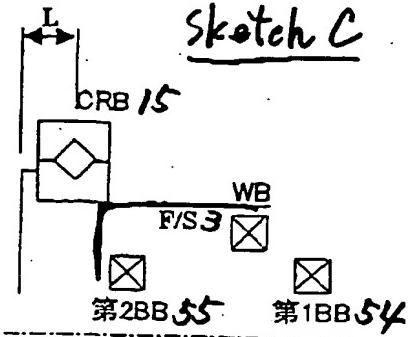
(USP 4,491,033)



Sketch B

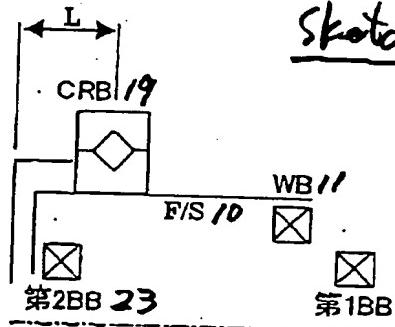
(Invention)

Sketch C



(Invention)

Sketch D



(JP 11-014656)